Indiana's National Immunization Survey Rate on the Rise

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The National Immunization Survey (NIS) is an ongoing survey that provides estimates of vaccination coverage among children 19-35 months of age. The data are based on the most recent 12 months for each of the 50 states and 28 selected urban areas. The NIS was established to provide a consistent data set for analyzing vaccination levels among young children in the US and disseminating this information to interested public health partners. It also helps track progress towards Healthy People 2010 Goals. They are defined as follows:

- Achieve and maintain 90% vaccination coverage levels for universally recommended vaccines among children. Individual antigen goals are 90% coverage for 4 doses of DTaP, 3 Hib, 1 MMR, 3 Polio, and 1 Varicella.

- Increase the proportion of young children who receive all vaccines that have been recommended for universal administration for at least five years. Eighty percent (80%) of children aged 19-35 months should receive all vaccines that have been recommended for universal administration for at least five years. At the time the goal was written, recommended vaccines included 4 DTaP, 3 Polio, 1 MMR, 3 Hib, and 3 Hepatitis B.

This report describes trends in Indiana vaccination coverage rates based on NIS findings from 1995-2002 and shows progress toward the Healthy People 2010 Goals.

NIS Study Design

The NIS uses random digit dialing to identify households with children aged 19 to 35 months. The survey asks parents or guardians to provide the vaccine information, including dates, that appear on the child's "shot card" kept in the home. Permission is then requested to contact the child's vaccination providers. Providers are contacted by mail to verify each child's vaccinations.

The NIS uses a nationally representative sample and provides estimates of coverage that are weighted to represent the national population, as well as populations by region, state, and selected large metropolitan areas. The large sample size allows the Centers for Disease Control and Prevention (CDC) to stratify the data to examine vaccination rates among different groups such as income level, race, education level of mothers, and other factors.

Complete NIS data for the U.S. and all states (with breakdowns listed above) can be found at the National Immunization NIS survey website at http://www.cdc.gov/nip/coverage/default.htm.

Complete Series Data

The standard series of vaccinations considered up-to-date for two-year-old children from 1995-2001 was the 4:3:1:3 series (4 DTaP, 3 Polio, 1 MMR, and 3 Hib vaccinations). Three hepatitis B vaccinations were added to the standard set of vaccines, making 4:3:1:3:3 the complete series in 2002. For this article, data reported for 2002 will reflect this change in the standard series. Indiana's coverage rate was 76.3% in 2000 and 76.0% in 2002, the two highest levels achieved since the inception of the NIS for a complete year of data. The most current rate (2002) represents an increase of 10.7% complete (from 65.3%) since 1996, which is the lowest rate recorded in Indiana since the NIS began collecting data. Indiana's complete series coverage rate consistently lagged behind the US rate during the 1990s by 2-6 percentage points. In 2000 and 2002, Indiana's rate equaled or exceeded the national rate (Figure 1). Indiana ranked 26th nationally (out of 50 states surveyed) in immunization coverage for the complete series in 2002, which is the highest ranking ever achieved. This was a marked increase from the state rankings when Indiana's rank ranged from 40-47 during the 1990s (Table 1).

Figure 1.

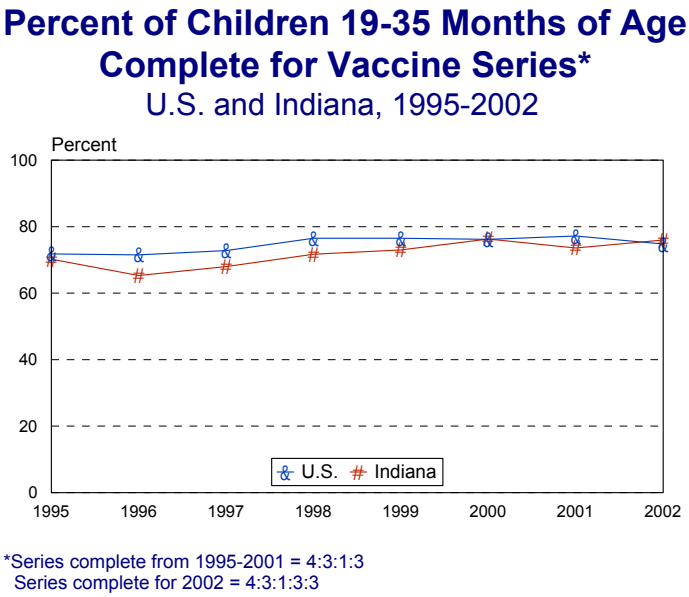


Table 1. Indiana's Ranking Among Other States – Complete Series

Year	Ranking Among the Fifty States	Percent Complete
2002	26*	76.0
2001	38	73.6
2000	29	76.3
1999	47	73.0
1998	40	71.1
1997	46	68.0
1996	40	65.3
1995	43	70.2

*Complete series = 4:3:1:3:3 for 2002 and 4:3:1:3 for all other years.

Individual Antigen Data

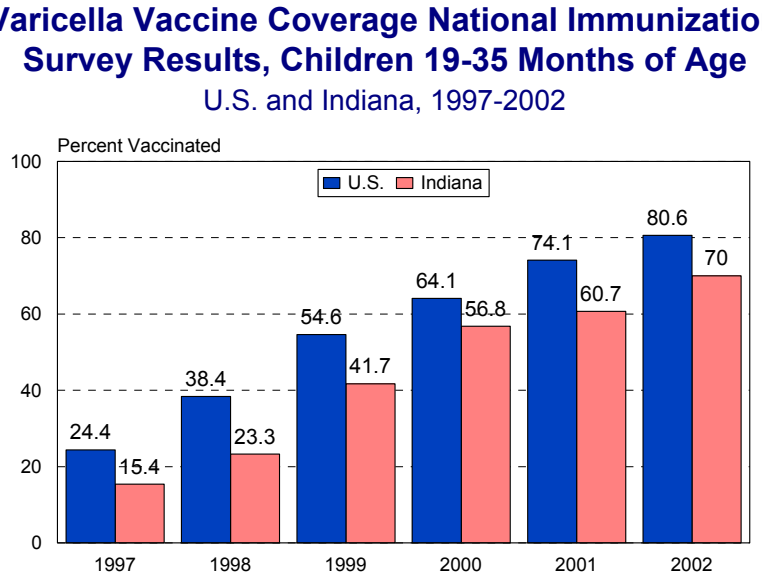
In 2002, four individual antigens (Polio, MMR, Hib, Hep B) had coverage levels above the 90% objective. DTaP and varicella were below the 90% objective. Only four other states had a 90% rate or better for 4+ DTaPs and no state had achieved 90% for varicella coverage. Indiana's rate for 3+ pneumococcal conjugate (PCV) vaccines was 40.7%. PCV, being a newly licensed vaccine, had supply problems almost from the day it first became available in 2000. Only six states achieved a coverage rate over 50% for PCV, with the highest being 66.8% (Rhode Island). See Table 2 for individual antigen rates in Indiana for 2002.

Table 2. Individual Antigen Coverage Rates for Indiana, 2002

3+HepB	3Hib	1MMR	3+Polio	4+DTaP	1Var	3+PCV
93.2	91.7	91.1%	90.5%	81.7%	70.0	40.7%

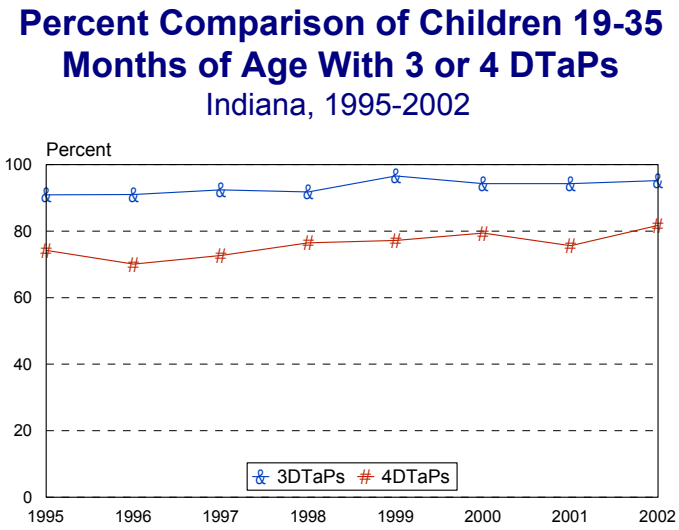
The rate for 4+ DTaP reported at 81.7% is a primary factor in keeping the series complete rates from reaching the stated objective. The rate for 3+ DTaPs was 13.5% higher than the rate for 4+DTaPs in 2002 (95.2% compared to 81.7%). A comparison of 3+DTaP and 4+DaP rates are shown in Figure 2. Aggressive reminding and recalling children for their fourth DTaP should have a positive effect on the complete series rate in Indiana.

Figure 2.



Indiana's coverage rate for varicella vaccine has lagged behind the national rate since the licensure of the vaccine in 1995 (Figure 3) and is currently at 70% as compared to 80.6% nationally. Indiana's rate has been 10-14% points below the national rate for varicella vaccine coverage since 1998. Increased coverage in Indiana may occur in the future as day care and school requirements for varicella vaccine are implemented. A one-dose requirement for new school enterers will take effect with the 2004-05 school year, and a one-dose requirement for day care center enrollees went into effect in January 2003.

Figure 3.



The findings described in the 2002 NIS report indicate that among U.S. and Indiana children 24 months of age, coverage with recommended vaccines remains near all-time highs. These high levels of immunization coverage have had a dramatic impact on the disease rate in the US and Indiana. There has not been a confirmed case of rubella or tetanus reported in Indiana since 1999. Only eight cases of measles (all imported) and 12 cases of mumps have occurred since 1999. No cases of any of those four diseases have occurred in 2003. Nationally in 2003, there have been no cases of diphtheria or polio, only 5 cases of tetanus and rubella, 35 cases of measles, 124 cases of mumps and 3,419 cases of pertussis. All childhood vaccine preventable diseases decreased dramatically in the 1990s except pertussis (see June issue of the Indiana Epidemiology Newsletter for discussion of pertussis disease).

Maintaining the gains in childhood vaccination rates attained during the 1990s and the first two years of the 21st century poses a constant challenge for public health. Since each annual birth cohort in the U.S. comprises roughly four million infants (approximately 86,000 in Indiana), constant vigilance in vaccinating infants and children on time will ensure that disease levels remain low, and in some cases, approach elimination and possibly eradication.